Department of Building Safety
101 4th Street East, Hastings, MN 55033
p. 651-480-2342 f. 651-437-1654
www.hastingsmn.gov

RESIDENTIAL DECKS 3-SEASON PORCHES

Information Sheet

Building Permits	Building Permits are required for all decks and porches.
Setbacks	Check with the Building or Planning Departments of Hastings.
Permit Fees	3 Season Porches are based on construction cost, materials and labor. Deck Flat Fee.
Plan Requirements	Two (2) copies of the plans and one (1) copy of the site survey. (You may draw these yourself) Show all dimensions, specify types and sizes of materials - provide as much construction detail as you can.
Frost Footings	Frost footings are required for any deck or porch that is attached to a dwelling or garage that has frost footings. All Footings must be 42 inches in depth - minimum 12" base width for decks and 24" for porches.
Guardrails	All decks that are 30" or more above grade must be protected by a guardrail. Such rails shall be 36" minimum in heights. Open guardrails and stair railings shall have intermediate rails or an ornamental pattern such that a 4" diameter sphere cannot pass through.
Overhang	Joists should not overhang beams by more than two (2) feet, nor should beams overhang posts by more than one (1) foot unless a special design is approved.
Live Load	All residential decks shall be designed to support a live load of 40 pounds per square foot.
Flashing	All connections between the deck/porch and dwelling shall be weatherproof. Any cuts in exterior finish shall be flashed and caulked.
Joist Hangers	Header beams and joists that frame into ledgers or beams shall be supported by approved framing anchors such as joist hangers.
Wood Required	All exposed wood used in the construction of decks/porches is required to be of approved wood of natural resistance to decay (redwood, cedar, etc.) or approved treated wood. This includes posts, beams, joists and decking.
Stairs	Minimum width is 36 inches. Maximum rise tread to tread is 7 3/4 inches. Minimum tread width is 10 inches. Largest tread width or riser height shall not exceed the smallest by more than 3/8 inch. A continuous graspable handrail is required, top to bottom of each stair having 4 or more risers. Handrails shall not be higher than 38 inches or lower than 34 inches.
Design Note	Some deck designs may not be appropriate should the placement of a screen porch or3-Season porch on the deck platform be a future consideration. Setbacks for porches are not the same as setbacks for decks.

DECKS AND 3-SEASON PORCHES
INSPECTIONS REQUIRED BY LAW

POST INSPECTION CARD IN PROMINENT PLACE

---

1. **Forming for Footings or Postholes Inspected** before placing concrete or posts - below grade minimum depth 42". Minimum 12" width at base for soil bearing for decks and minimum of 24" for porches.

2. **Framing Inspection** before exterior finish and roofing.

3. **Electrical Wiring Rough-In Inspection** before concealing (call Mr. Michael Hawke at 952-997-6822 between 7:00 a.m. and 8:30 a.m., Monday through Friday, for electrical inspections.

4. **Insulation and Vapor Barrier Inspection** prior to covering with interior finishes.

5. **Electrical Final Inspection** when all wiring and fixtures complete.

6. **Final Inspection** when complete.

When work is ready, an inspection must be requested and made prior to concealing.

State Code 1300.0210

Wiring may not be concealed prior to approval
State Law 326
3800.3770 MN Rule

Inspection hours are 9:30 - 3:30 p.m.
All inspections require a 24 hour notice to the Department of Building Safety.
Call 480-2342 to schedule inspections.

MOST COMMON REASONS DECK INSPECTIONS FAIL

FOOTINGS NOT PROPERLY SIZED OR FULL OF WATER

The City of Hastings Inspections Department will size your footings during the plan review and mark sizes in red next to the appropriate footing on the plan. This is the minimum diameter the footing shall be at the base of the footing. The depth will always be 42 inches minimum. Also, if it is a rainy day, we will not pass a footing inspection if there is water in the holes.

PLANS NOT ON JOB

The inspectors need to have the copy of the city approved plan at the site. That plan has the appropriate footing sizes as well as other needed corrections on it and we cannot do an inspection without that plan being on the site at the time of the inspection.

DID NOT CALL FOR A FRAMING INSPECTION

If the deck being built is less than 48 inches from the ground, a framing inspection is required before any decking is nailed on so we can see the joists, joist hangers and beams.

JOIST HANGERS NOT NAILED PROPERLY

A joist hanger is an engineered piece of construction hardware. The hangers are designed with a certain amount of holes which all have to be nailed with the proper size joist hanger nails.

SPLICES IN BEAMS NOT OVER POSTS

If the beam on the deck is too long to have one continuous piece of lumber, splices in that beam shall occur over the top of the post.

BOLT REQUIRED AT POST BEAM CONNECTIONS

2 X 12 or larger beams require three ½ inch diameter bolts. 2X10 or smaller beams require two ½ inch diameter bolts.

LAG BOLTS IN LEDGER 16" ON CENTER

The ledger that is attached to the house, regardless of the size of the deck, requires two (2) lag bolts that are 4 ½ inches minimum in length and 3/8 inch minimum in diameter spaced at 16 inches o.c. minimum.

POSTS DO NOT LINE UP ON TOP OF FOOTINGS

Posts should line up on top of the poured concrete footing with no portion of the post overhanging the concrete.

RISERS AND TREADS NOT LEGAL ON STAIRS

Risers are measured from top of tread to top of tread or ground level to top of tread in the case of the bottom step. All risers shall be equal and the maximum height a rise can be is 7 3/4". The minimum height is four inches (4"). Treads are measured from nose of tread to nose of the next tread. They must also be equal and a minimum dimension of ten inches (10"). Bottom and top risers and treads are no exceptions, they must all be equal.

HANDRAILS NOT LEGAL

Every stairway over 30 inches in height requires guardrails on both sides with a minimum height of 34 inches. Every stairway with four or more risers requires an approved handrail on one side 34-38 inches in height from nosing of tread up to top of rail. The handrail shall be continuous the full length of the stairs and ends shall terminate into a newel post or be returned back into newel posts.

INCORRECT HANGERS

Special hangers are required for use with treated wood because of the chemicals. Consult your supplier for the correct hangers and fasteners to use.

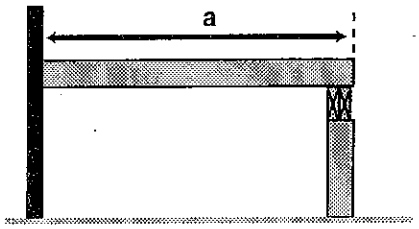
Joist Span

Based on No. 2 or better wood grades.
(Design Load = 40#LL + 10#DL, Deflection= L/360)

	Ponderosa Pine			Southern Pine			Western Cedar		
	12"OC	16"OC	24"OC	12"OC	16"OC	24"OC	12"OC	16"OC	24"OC
2x6	9-2	8-4	7-0	10-9	9-9	8-6	9-2	8-4	7-3
2x8	12-1	10-10	8-10	14-2	12-10	11-0	12-1	11-0	9-2
2x10	15-4	13-3	10-10	18-0	16-1	13-5	15-5	13-9	11-3
2x12	17-9	15-5	12-7	21-9	19-0	15-4	18-5	16-0	13-0

Sample Calculations for Using Joist Span, Beam Size and Footing Size Tables

CASE I SOLUTION:



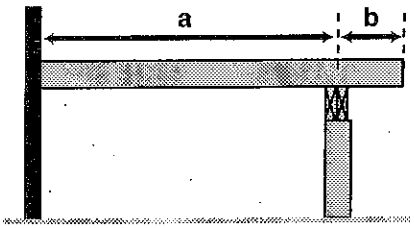
Refer to tables for joist, beam and footing size requirements.

Example: a = 12'; Post Spacing = 8'

Use the **Joist Span** table to find the acceptable joist sizes for a 12' span, 2x8s at 12" O.C., 2x10s at 16" O.C. or 2x12s at 24" O.C.

Use the **Beam and Footing Sizes** table and find the 8' post spacing column. With a 12' deck span, the beam may be either two 2x8s or two 2x10s, depending on wood used. Depending on the type of soil, the footing diameter at the base must be a minimum of 12", 10" or 9" for the corner post and 17", 14" or 12" for all intermediate posts.

CASE II SOLUTION:



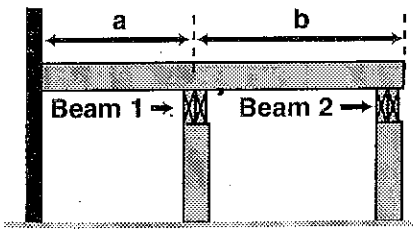
Use "a" to determine joist size and "a" + "2b" to determine beam and footing sizes. The length of "b" is restricted by both the length of "a" and the size of the joists.

Example: a = 8', b = 2', Post Spacing = 10'

Refer to the **Joist Span** table. For an 8' joist span, either 2x8s at 24" O.C. or 2x6s at 16" O.C are acceptable.

For sizing the beam, use a joist length of 12' (8' + 4') and a post spacing of 10'. The **Beam and Footing Sizes** table indicates that the beam may be either two 2x10s or two 2x12s, depending on wood used. Depending on the type of soil, the footing diameter at the base must be a minimum of 15", 12" or 11" for the corner post and 20", 17" or 15" for all intermediate posts. Note that because of the 2' cantilever all footing sizes were increased by 1" as required by footnote 2 at the end of the table.

CASE III SOLUTION:



Use "a" or "b", whichever is greater, to determine joist size. Use "a" + "b" to determine the size of Beam 1 and the post footing size for the posts supporting Beam 1. Use joist length "b" to determine both the size of Beam 2 and the post footing size for the posts supporting Beam 2.

Example: a = 6', b = 7', Post Spacing = 9'

Joist size is determined by using the longest span joist (7'). The **Joist Span** table indicates that 2x6s at 24" O.C. would be adequate for this span.

For Beam 1 and footings, use a joist length of 13' (6' + 7') and a post spacing of 9'. The **Beam and Footing Sizes** table indicates that the beam may be two 2x10s or two 2x12s, depending on the wood used. Depending on the type of soil, the footing diameters for Beam 1 posts shall be 13", 11" or 9" for the corner (outside) post and 19", 15" or 13" for all intermediate posts. For Beam 2 and footings use a joist length of 7' and post spacing of 9'. The beam may be two 2x8s or two 2x10s, depending on wood used. Depending on the type of soil, the footing diameters for Beam 2 shall be 10", 8" or 7" for the corner posts, and 14", 11" or 10" for all intermediate posts.

Beam and footing sizes

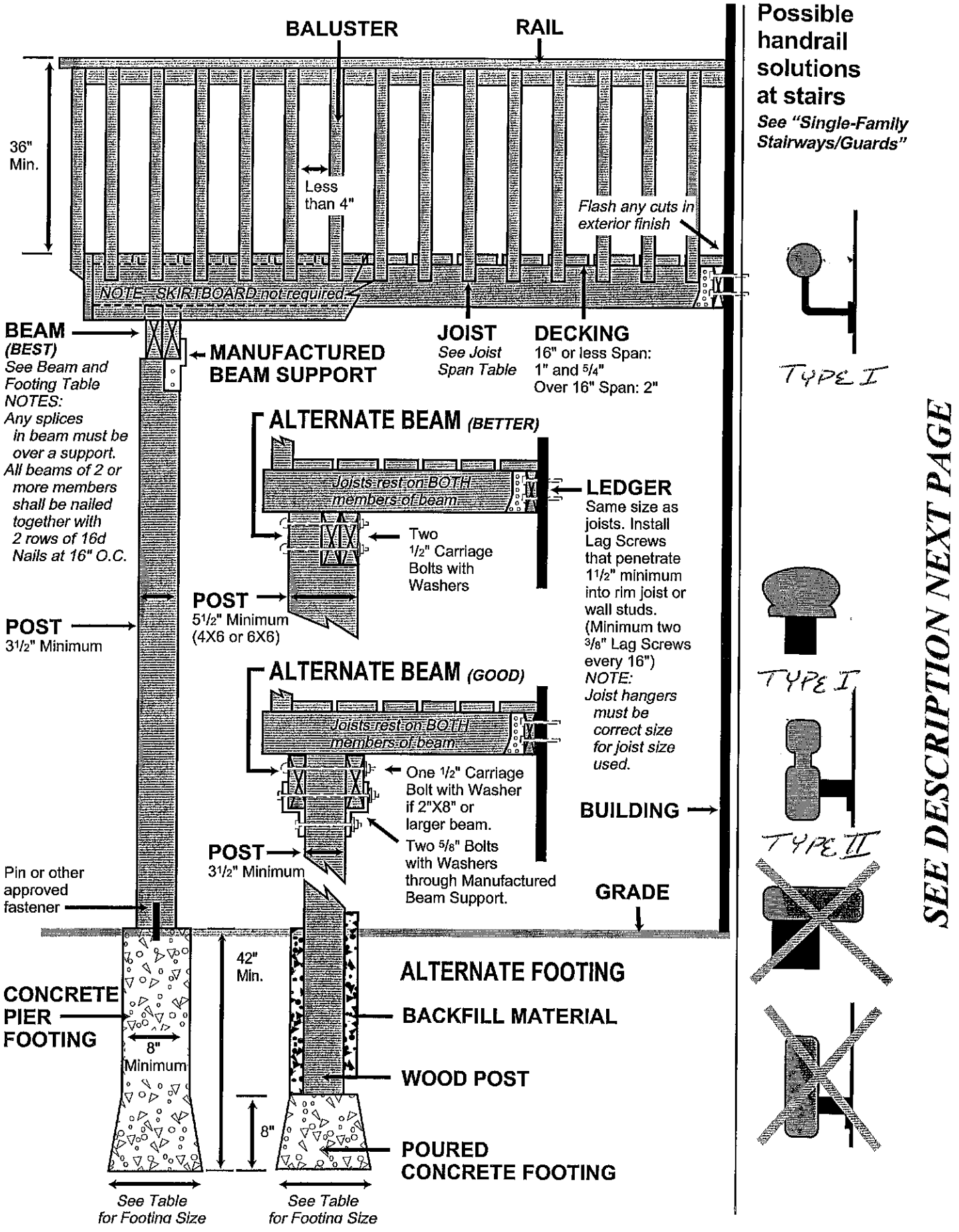
Based on No. 2 or better Ponderosa Pine and Southern Pine (Treated for weather and/or ground exposure)

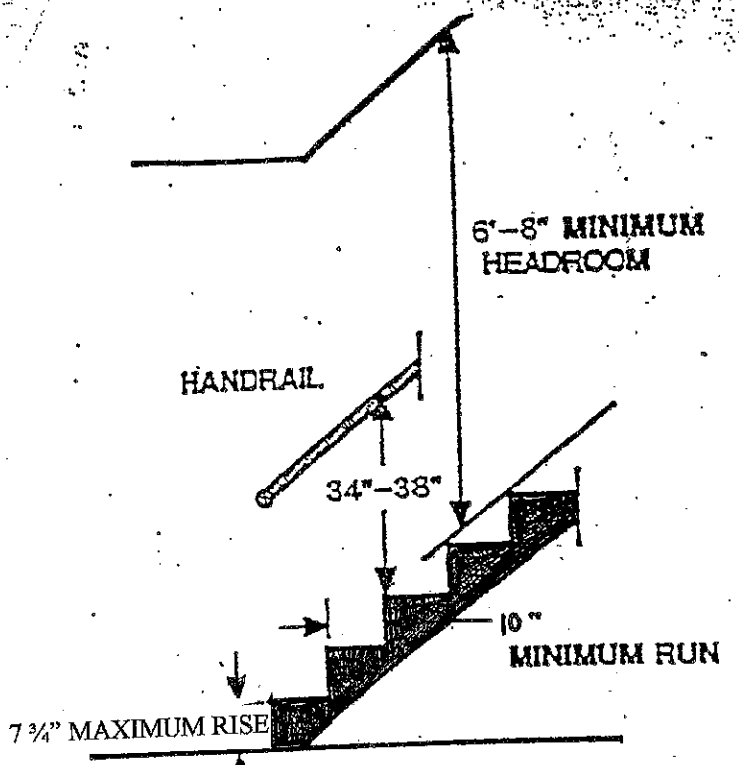
Joist Length			Post spacing 4'	5'	6'	7'	8'	9'	10'	11'	12'	13'	14'
	6'	Southern Pine Beam	1-2x6	1-2x6	1-2x6	2-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10	2-2x10	2-2x10
		Ponderosa Pine Beam	1-2x6	1-2x6	1-2x8	2-2x8	2-2x8	2-2x8	2-2x10	2-2x10	2-2x12	2-2x12	3-2x10
		Corner Footing	6 5 4	7 6 5	7 6 5	8 7 6	9 7 6	9 7 6	10 8 7	10 8 7	10 9 7	11 9 8	11 9 8
		Intermediate Footing	9 8 7	10 8 7	10 9 7	11 9 8	12 10 9	13 10 9	14 11 10	14 12 10	15 12 10	15 13 11	16 13 11
	7'	Southern Pine Beam	1-2x6	1-2x6	1-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10	2-2x10	2-2x10	2-2x12
		Ponderosa Pine Beam	1-2x6	1-2x6	1-2x8	2-2x8	2-2x8	2-2x10	2-2x10	2-2x10	2-2x12	3-2x10	3-2x10
		Corner Footing	7 5 5	7 6 5	8 7 6	9 7 6	9 8 7	10 8 7	10 8 7	11 9 8	11 9 8	12 10 9	12 10 9
		Intermediate Footing	9 8 7	10 8 7	11 9 8	12 10 9	13 11 9	14 11 10	15 12 10	15 13 11	16 13 11	17 14 12	17 14 12
	8'	Southern Pine Beam	1-2x6	1-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x8	2-2x10	2-2x10	2-2x12	2-2x12
		Ponderosa Pine Beam	1-2x6	2-2x6	2-2x8	2-2x8	2-2x8	2-2x10	2-2x10	2-2x10	3-2x10	3-2x10	3-2x12
		Corner Footing	7 6 5	8 6 6	9 7 6	9 8 7	10 8 7	10 8 7	11 9 8	11 9 8	12 10 9	13 10 9	13 11 9
		Intermediate Footing	10 8 7	11 9 8	12 10 9	13 11 9	14 11 10	15 12 10	16 13 11	16 13 12	17 14 12	18 15 13	18 15 13
	9'	Southern Pine Beam	1-2x6	1-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10	2-2x10	2-2x12	2-2x12	3-2x10
		Ponderosa Pine Beam	1-2x6	2-2x6	2-2x8	2-2x8	2-2x10	2-2x10	2-2x10	3-2x10	3-2x10	3-2x12	3-2x12
		Corner Footing	7 6 5	8 7 6	9 7 6	10 8 7	10 9 7	11 9 8	12 10 8	12 10 9	13 10 9	13 11 9	14 11 10
		Intermediate Footing	10 9 7	12 10 8	13 10 9	14 11 10	15 12 10	16 13 11	17 14 12	17 14 12	18 15 13	19 15 13	20 16 14
	10'	Southern Pine Beam	1-2x6	1-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10	2-2x12	2-2x12	3-2x10	3-2x10
		Ponderosa Pine Beam	1-2x6	1-2x6	2-2x8	2-2x8	2-2x10	2-2x10	2-2x12	3-2x10	3-2x12	3-2x12	Eng Bm
		Corner Footing	8 6 6	9 7 6	10 8 7	10 8 7	11 9 8	12 10 8	12 10 9	13 11 9	14 11 10	14 12 10	15 12 10
		Intermediate Footing	11 9 8	12 10 9	14 11 10	15 12 10	16 13 11	17 14 12	17 14 12	18 15 13	19 16 14	20 16 14	21 17 15
	11'	Southern Pine Beam	1-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10	2-2x10	2-2x12	2-2x12	3-2x10	3-2x12
		Ponderosa Pine Beam	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10	2-2x12	2-2x12	3-2x10	3-2x12	3-2x12	Eng Bm
		Corner Footing	8 7 6	9 7 6	10 8 7	11 9 8	12 9 8	12 10 9	13 11 9	14 11 10	14 12 10	15 12 10	15 13 11
		Intermediate Footing	12 9 8	13 11 9	14 12 10	15 12 10	16 13 11	17 14 12	17 14 12	18 15 13	19 16 14	20 16 14	21 17 15
	12'	Southern Pine Beam	1-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10	2-2x10	2-2x12	3-2x10	3-2x10	3-2x12
		Ponderosa Pine Beam	2-2x6	2-2x6	2-2x8	2-2x10	2-2x10	2-2x12	2-2x12	3-2x12	3-2x12	Eng Bm	Eng Bm
		Corner Footing	9 7 6	10 8 7	10 9 7	11 9 8	12 10 9	13 10 9	14 11 10	14 12 10	15 12 10	15 13 11	16 13 11
		Intermediate Footing	12 10 9	14 11 10	15 12 10	16 13 11	17 14 12	18 15 13	19 16 14	20 16 14	21 17 15	22 18 15	23 18 16
	13'	Southern Pine Beam	1-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10	2-2x10	2-2x12	3-2x10	3-2x12	3-2x12
		Ponderosa Pine Beam	2-2x6	2-2x6	2-2x8	2-2x10	2-2x12	2-2x12	2-2x12	3-2x12	3-2x12	Eng Bm	Eng Bm
		Corner Footing	9 7 6	10 8 7	11 9 8	12 10 8	13 10 9	13 11 9	14 12 10	15 12 10	15 13 11	16 13 11	17 14 12
		Intermediate Footing	13 10 9	14 12 10	15 13 11	17 14 12	18 15 13	19 15 13	20 16 14	21 17 15	22 18 15	23 19 16	24 19 17
	14'	Southern Pine Beam	1-2x6	2-2x6	2-2x6	2-2x8	2-2x10	2-2x10	2-2x12	3-2x10	3-2x12	3-2x12	3-2x12
		Ponderosa Pine Beam	2-2x6	2-2x8	2-2x8	2-2x10	2-2x12	3-2x10	3-2x12	3-2x12	Eng Bm	Eng Bm	Eng Bm
		Corner Footing	9 8 7	10 8 7	11 9 8	12 10 9	13 11 9	14 11 10	15 12 10	15 13 11	16 13 11	17 14 12	17 14 12
		Intermediate Footing	13 11 9	15 12 10	16 13 11	17 14 12	18 15 13	20 16 14	21 17 15	22 18 15	23 18 16	24 19 17	24 20 17
	15'	Southern Pine Beam	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10	2-2x12	2-2x12	3-2x10	3-2x12	3-2x12	Eng Bm
		Ponderosa Pine Beam	2-2x6	2-2x8	2-2x8	2-2x10	3-2x10	3-2x10	3-2x12	3-2x12	Eng Bm	Eng Bm	Eng Bm
		Corner Footing	10 8 7	11 9 8	12 10 8	13 10 9	14 11 10	14 12 10	15 12 11	16 13 11	17 14 12	17 14 12	18 15 13
		Intermediate Footing	14 11 10	15 12 11	17 14 12	18 15 13	19 16 14	20 17 14	21 17 15	22 18 16	23 19 17	24 20 17	25 21 18
	16'	Southern Pine Beam	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10	2-2x12	2-2x12	3-2x10	3-2x12	3-2x12	Eng Bm
		Ponderosa Pine Beam	2-2x6	2-2x8	2-2x10	2-2x10	3-2x10	3-2x10	3-2x12	3-2x12	Eng Bm	Eng Bm	Eng Bm
		Corner Footing	10 8 7	11 9 8	12 10 9	13 11 9	14 11 10	15 12 10	16 13 11	16 13 12	17 14 12	18 15 13	18 15 13
		Intermediate Footing	14 11 10	16 13 11	17 14 12	18 15 13	20 16 14	21 17 15	22 18 16	23 19 16	24 20 17	25 21 18	26 21 18

Notes:

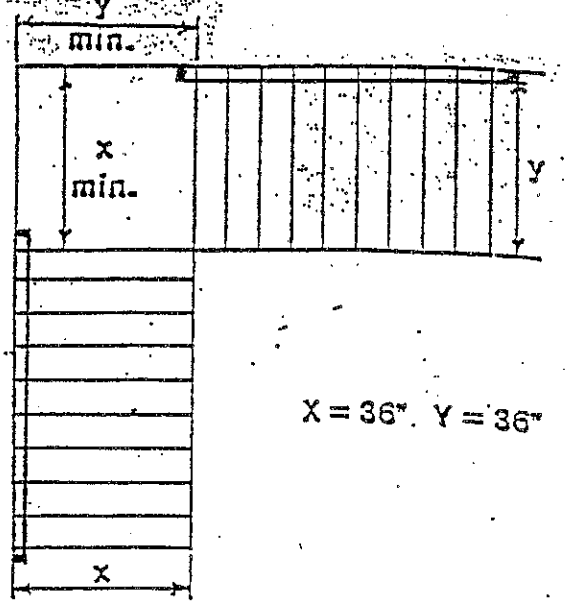
1. Joist length is total length of joist, ***including*** any cantilevers.
2. When joist extends (cantilevers) beyond support beam by 18 inches or more, add 1 inches to footing dimensions shown.
3. Requirements for future 3-season porches or screen porches:
   a. Increase corner footing size shown by 90%.
   b. Increase center footing size shown by 55%.
   c. Locate all footings at extremities of deck (no cantilevers).
   d. Beam sizes indicated need not be altered.
4. All footing sizes above are base diameters (in inches) and are listed for THREE SOIL TYPES:

	CLAY	SAND	GRAVEL
Corner Footing	10	8	7
Intermediate Footing	14	11	10


BALUSTER
RAIL
36" Min.
Less than 4"
Flash any cuts in exterior finish
NOTE: SKIRTBOARD not required
BEAM (BEST)
See Beam and Footing Table
NOTES:
Any splices in beam must be over a support.
All beams of 2 or more members shall be nailed together with 2 rows of 16d Nails at 16" O.C.
MANUFACTURED BEAM SUPPORT
JOIST
See Joist Span Table
DECKING
16" or less Span: 1" and 5/4"
Over 16" Span: 2"
ALTERNATE BEAM (BETTER)
Joists rest on BOTH members of beam
LEDGER
Same size as joists. Install Lag Screws that penetrate 1 1/2" minimum into rim joist or wall studs. (Minimum two 3/8" Lag Screws every 16")
NOTE:
Joist hangers must be correct size for joist size used.
Two 1/2" Carriage Bolts with Washers
POST
5 1/2" Minimum
(4X6 or 6X6)
POST
3 1/2" Minimum
ALTERNATE BEAM (GOOD)
Joists rest on BOTH members of beam
One 1/2" Carriage Bolt with Washer if 2"X8" or larger beam.
Two 5/8" Bolts with Washers through Manufactured Beam Support.
POST
3 1/2" Minimum
BUILDING
GRADE
Pin or other approved fastener
CONCRETE PIER FOOTING
8" Minimum
42" Min.
8"
ALTERNATE FOOTING
BACKFILL MATERIAL
WOOD POST
POURED CONCRETE FOOTING
See Table for Footing Size
See Table for Footing Size
Possible handrail solutions at stairs
See "Single-Family Stairways/Guards"
TYPE I
TYPE I
TYPE II
SEE DESCRIPTION NEXT PAGE



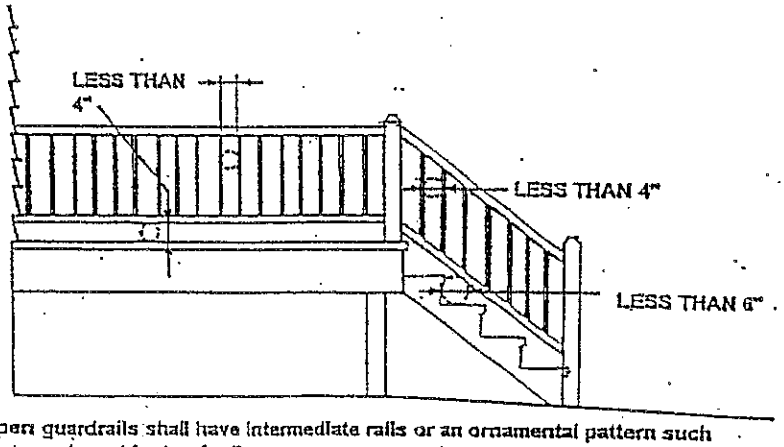
OCCUPANT LOAD LESS THAN 10
(Private Stairway)



X = 36". Y = 36"

Stairways:
Stairs must be a minimum of 36" wide with a handrail on at least one side – continuous from top to bottom of stairs. All stairs must have a concrete landing at the bottom.

GUARDRAILS



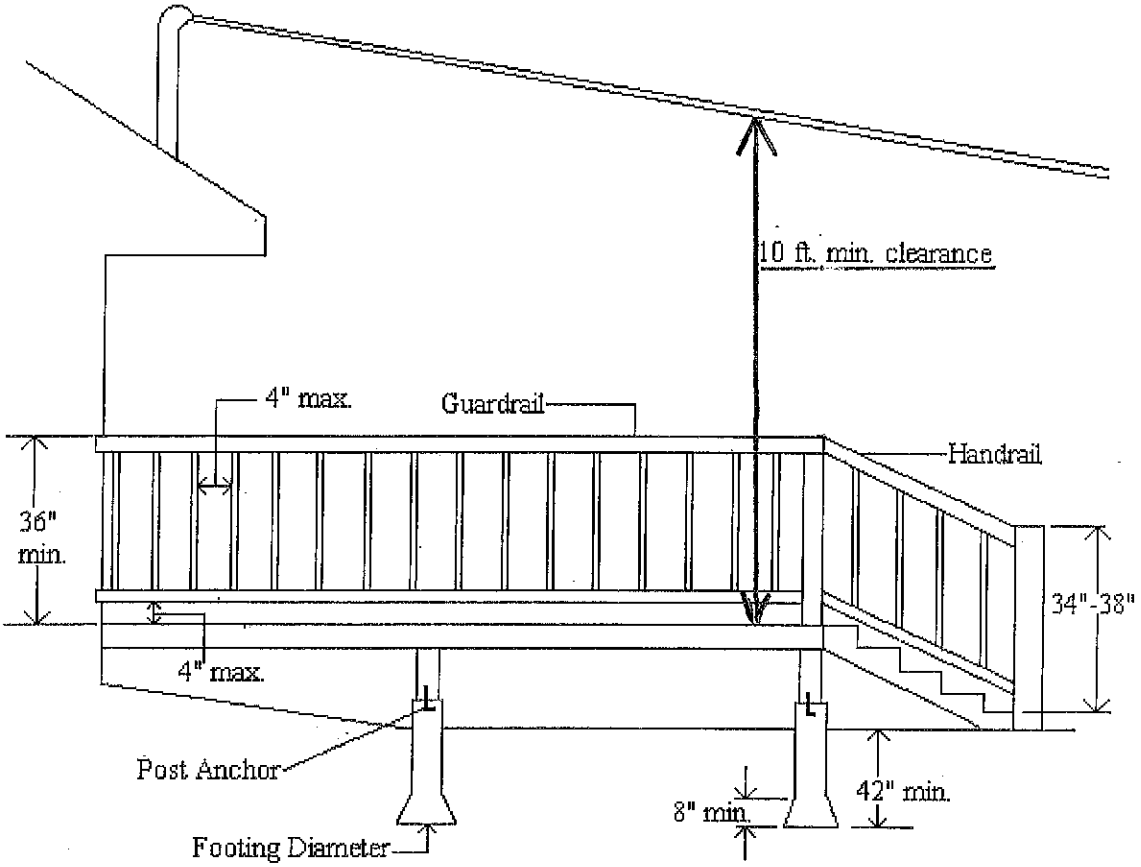
Open guardrails shall have intermediate rails or an ornamental pattern such that a sphere 4 inches in diameter cannot pass through.

EXCEPTION: The triangular openings formed by the riser, tread and bottom element of a guardrail at the open side of a stairway may be of such size that a sphere 6 inches in diameter cannot pass through

R311.5.6.3 Handrail grip size. All required handrails shall be of one of the following types or provide equivalent graspability.

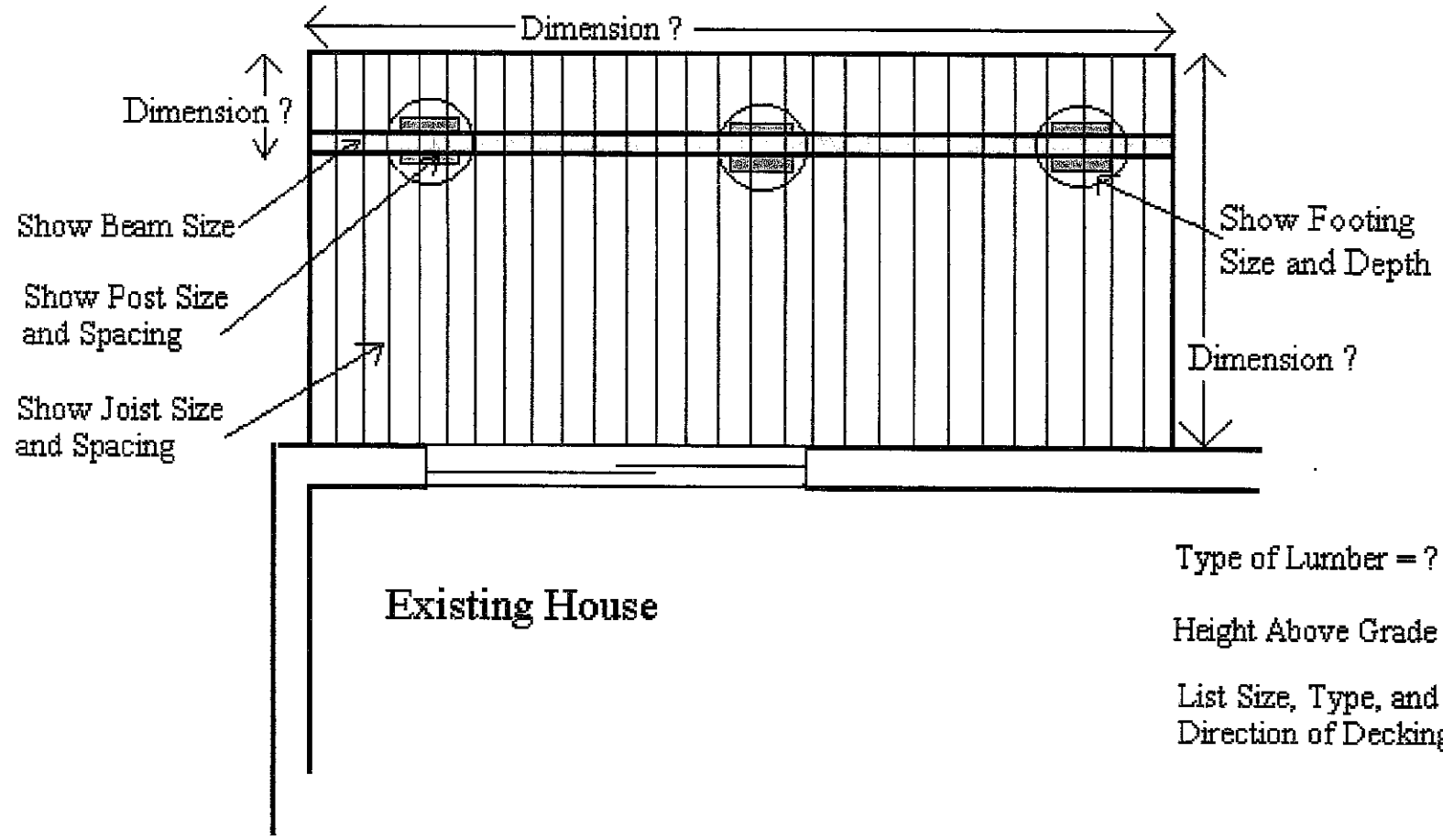
1. Type I. Handrails with a circular cross section shall have an outside diameter of at least $1^1/_4$ inches (32 mm) and not greater than 2 inches (51 mm). If the handrail is not circular it shall have a perimeter dimension of at least 4 inches (102 mm) and not greater than $6^1/_4$ inches (160 mm) with a maximum cross section of dimension of $2^1/_4$ inches(57 mm).
2. Type II. Handrails with a perimeter greater than $6^1/_4$ inches (160 mm) shall provide a graspable finger recess area on both sides of the profile. The finger recess shall begin within a distance of $^3/_4$ inch (19 mm) measured vertically from the tallest portion of the profile and achieve a depth of at least $^5/_{16}$ inch (8 mm) within $^7/_8$ inch (22 mm) below the widest portion of the profile. This required depth shall continue for at least $^3/_8$ inch (10 mm) to a level that is not less than $1^3/_4$ inches (45 mm) below the tallest portion of the profile. The minimum width of the handrail above the recess shall be $1^1/_4$ inches (32 mm) to a maximum of $2^3/_4$ inches (70 mm). Edges shall have a minimum radius of 0.01 inch (0.25 mm).

Sample Deck Elevation



List Footing Diameters
List Width of Stairs (min. 36")
List Stair Riser Height (8" max.)
List Stair Tread Width (9" max.)

Sample Deck Plan

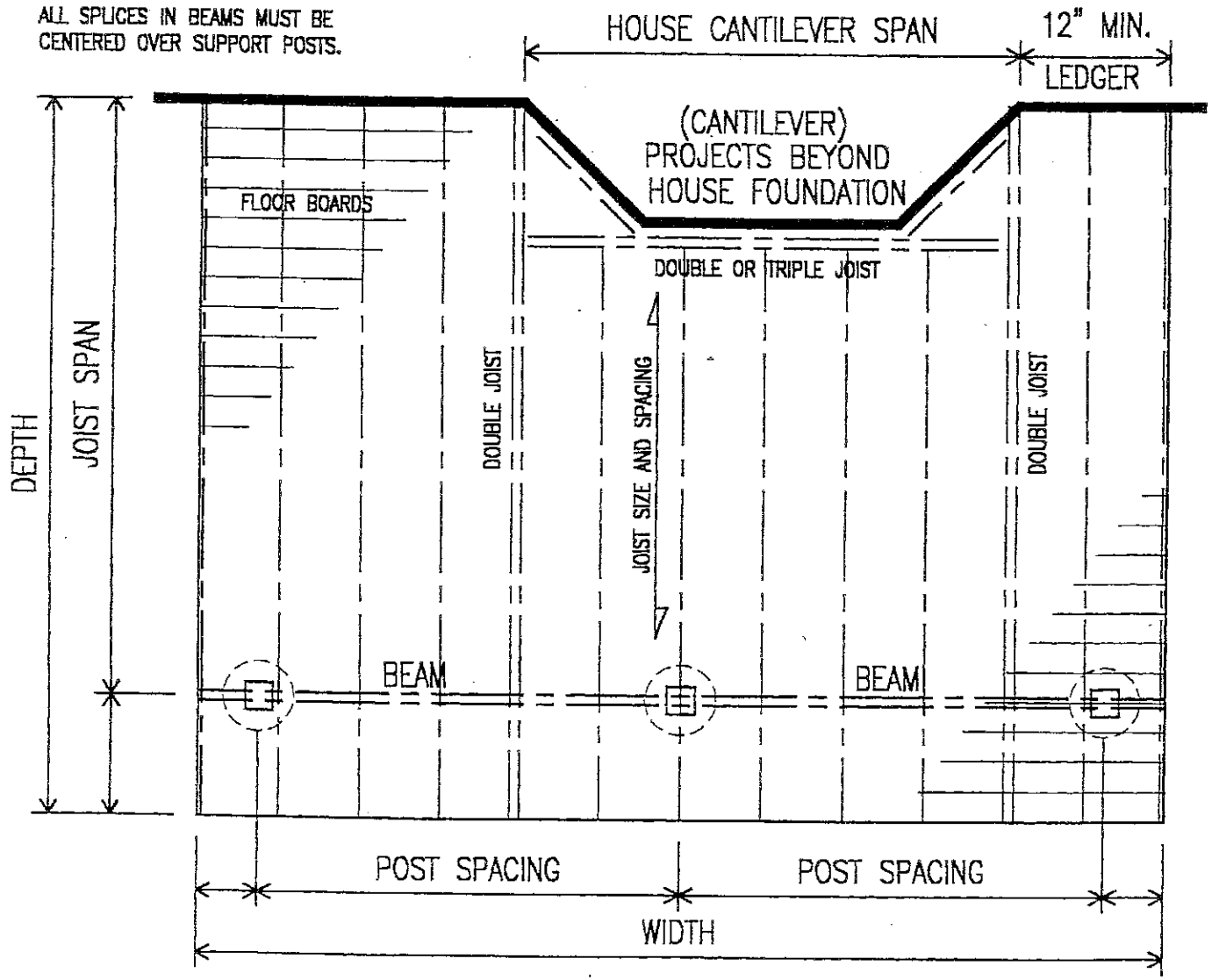


Type of Lumber = ?

Height Above Grade = ?

List Size, Type, and
Direction of Decking.

NOTE:
ALL SPLICES IN BEAMS MUST BE CENTERED OVER SUPPORT POSTS.



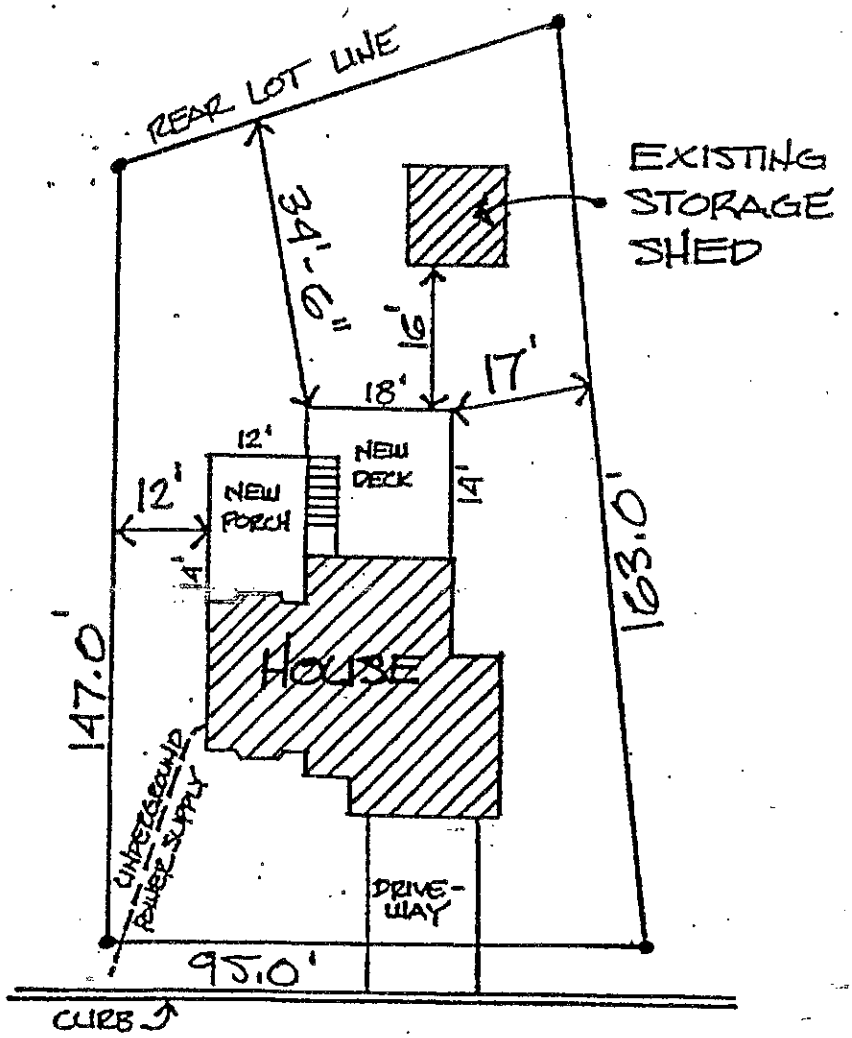
ALL DIAGRAMS ARE INTENDED FOR ILLUSTRATION PURPOSES ONLY - - OTHER DECK DESIGNS ARE ACCEPTABLE.

TYPICAL DECK PLAN

EXAMPLE SITE PLAN

PROVIDE 2 COPIES OF A SITE PLAN

PROPOSED NEW DECK/PORCH LOCATION



SHOW ON PLAN

LOT SIZE
STREET NAME
ADDRESS
OWNER NAME
ALL EXISTING STRUCTURES
DRIVEWAY
POND/LAKE/STREAM
SPECIAL EASEMENTS
POWER SUPPLY
LOCATION OF NEW STRUCTURE
SIZE OF NEW STRUCTURE
DIMENSIONS TO LOT LINES
DIMENSIONS TO OTHER BUILDINGS

NOTE: IF SITE PLAN IS NOT COMPLETE THE PROCESS FOR REVIEW OF THE APPLICATION WILL BE HELD UP.

GOPHER STATE ONE CALL
651-454-0002 OR 1-800-252-1166
OR 811

5284 182ND ST. WEST
JACK & JILL SMITH